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ABSTRACT

This review, undertaken on behalf of the Australian School Library Association (ASLA), was conducted over a 4-week period in November-December 2002 with the purpose of: reporting on the nature and extent of the evidence that has linked school libraries to student achievement since 1990, identifying the strengths and gaps in existing data as it might relate to an Australian setting, and suggesting some strategies for developing further research in Australia. The review was conducted with the intention of providing a clear and accessible synthesis of existing research to inform subsequent strategic action and research directions in an Australian context. This report is based on a critical desktop review, which looked at a range of studies both overseas and in Australia since 1990, including earlier overviews of the research. In general, the literature confirms the need for local, evidence-based practice if the roles of the school library and teacher librarian in student learning are to be valued in the way that the research suggests they should be valued. Such research is an important strategic tool for raising the profile and prestige of library professionals and for reinforcing in the minds of policy-makers and school communities the crucial contribution that school libraries can make to student achievement. (Contains 81 references.) (AEF)

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Report for the Australian School Library Association

by Michele Lonsdale

2003

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Executive summary

Several recent trends suggest that a review of the literature on the impact of school libraries on student achievement in an Australian context is urgently needed. The context in which school librarians and teacher librarians operate today has changed significantly over the past couple of decades, with consequent implications for student learning. In particular, there has been an apparent decline in the numbers of qualified teacher librarians employed in school libraries in public schools in Australia; an explosion in information production and the development of information communication technologies (ICTs); changes in educational philosophy and practice, including a greater focus on learning outcomes, inquiry-based learning, evidence-based practice and school accountability; and changes in the nature and role of the teacher librarian as a result of these developments.

Although a substantial body of research since 1990 shows a positive relationship between school libraries and student achievement, many of these studies are based on overseas data. If practitioners in Australia are to mount a strong case for recognising the positive impact of school libraries and school librarians on student learning, however, it is important to know how applicable the existing research is to an Australian context and what kind of additional research might be needed to demonstrate the positive relationship between school libraries and student achievement.

The review focuses on studies conducted since 1990, which show that school libraries can have a positive impact on student achievement—whether such achievement is measured in terms of reading scores, literacy or learning more generally—in the following key ways:

- a strong library program that is adequately staffed, resourced and funded can lead to higher student achievement regardless of the socioeconomic or educational levels of the adults in the community;
- a strong computer network connecting the library's resources to the classroom and laboratories has an impact on student achievement;
- the quality of the collection has an impact on student learning;
- test scores are higher when there is higher usage of the school library;
- collaborative relationships between classroom teachers and school librarians have a significant impact on learning, particularly in relation to the planning of instructional units, resource collection development, and the provision of professional development for teachers;
- a print-rich environment leads to more reading, and free voluntary reading is the best predictor of comprehension, vocabulary growth, spelling and grammatical ability, and writing style;
- integrating information literacy into the curriculum can improve students' mastery of both content and information seeking skills; and that
- libraries can make a positive difference to students' self-esteem, confidence, independence and sense of responsibility in regard to their own learning.

The literature search has also revealed several gaps in the research. A lack of systematically aggregated national data makes it difficult to gain an accurate picture of

national trends in Australia in relation to the staffing of school libraries. Much of the research that has been done so far has focused on the primary, rather than the secondary, school setting, and yet there is some evidence to suggest that the impact of the school library diminishes as students move through high school. It would be useful to investigate student usage patterns in relation to school libraries in Australia. Knowing why students come to the library—for example, to what extent they are motivated by a need to find information for a project, a desire for leisure reading material, a desire to use computer games or gain access to the Internet, a desire to gain work-related skills by assisting staff, a need for a sanctuary from the rigours of the schoolyard—could help school library staff to cater better for student needs and, as existing research suggests, potentially make a difference in terms of information skills acquisition, reading literacy skills, computer literacy or improved self-esteem.

In terms of professional expertise, more research is needed to determine the extent to which the success of a school library program is due to the librarian's personal attributes or training and experience. Also missing from the research is evidence about the relative roles of teachers and school librarians and their effectiveness in providing information literacy.

A significant gap in the research is the lack of specific evidence linking the role of school librarians to student acquisition of information literacy skills. A substantial body of literature urges the importance of the librarian's role in this regard, offers information skills models and instructional strategies for the development of information literacy skills, and provides information literacy standards, but the literature search yielded few studies that explicitly look at students' skills before undertaking and on completion of some form of information skills education as part of an integrated curriculum. More evidence is needed to determine precisely how the school librarian contributes to the information skills acquisition of students and the relationship between information literacy and learning.

In terms of evaluating the impact of the school library on broader aspects of learning, it may be that a series of focused, small-scale, qualitative studies are a more useful option in an Australian context than the large-scale, quantitative models adopted by researchers in the United States. Such methodological approaches as action research, survey questionnaires, case studies and interviews would be ideally suited to studies seeking to measure the difference that school libraries and librarians can make in an Australian setting, particularly on more intangible outcomes such as autonomy, confidence and self-esteem, or on particular subgroups, such as non-English-speaking students, indigenous students, low-achieving students or those at risk. Longitudinal studies that track changes over time need not be large scale and could also prove a useful source of information.

In general, the literature confirms the need for local, evidence-based practice if the roles of the school library and teacher librarian in student learning are to be valued in the way that the research suggests they should be valued. Such research is an important strategic tool for raising the profile and prestige of library professionals and for reinforcing in the minds of policy-makers and school communities the crucial contribution that school libraries can make to student achievement.

1 Introduction

This review has been undertaken on behalf of the Australian School Library Association (ASLA). It was conducted over a four-week period in November–December 2002. Because of the modest timeline the review is not exhaustive but focuses on the main studies carried out since 1990 on the relationship between school libraries and student achievement. Although a commonsense view would suggest the issue is a straightforward one—how could school libraries *not* contribute to student learning, for example—this is not necessarily the case. Not only is there a range of variables that need to be taken into account in determining the nature of the impact of school libraries on student achievement but also the concept of 'student achievement' itself is not used consistently by studies. Most commonly it has been measured in terms of student performance on standardised tests, although some studies have equated it with literacy development or student learning more generally. Increasingly, there is interest in trying to measure the contribution that school librarians make in regard to students' information literacy skills.

The role, responsibilities and qualifications of library staff are also not necessarily the same in all studies. Reynolds and Carroll (2001), for example, note a range of terms employed to describe library staff, including *library teacher*, *library manager*, *information technician*, *resource centre manager*, *specialist library information teacher*, *library co-ordinator* and *resource co-ordinator*. Their survey of 197 Victorian primary schools reveals that some individuals who called themselves librarians did not always have any library qualifications and that some who called themselves teacher librarians did not always have a teaching qualification. These findings led the researchers to question the implications of the various terms and whether the title used affects our perceptions of the role. In the United States the Australian 'teacher librarian' becomes a 'library media specialist', and in England and Scotland, where the role traditionally does not include teacher training, a 'librarian'. Reynolds and Carroll (2001) define a teacher librarian as 'a specialist teacher in a specialist classroom who, to perform the role, must have specialist teacher librarianship training'. In this review of the literature the terms *school library* and *school librarian* or *library professional* have been used to avoid confusion and to indicate a member of the school library staff with specialist teacher training.

2 Purpose

The main purpose of this review is to report on the nature and extent of the evidence that has linked school libraries to student achievement since 1990, to identify the strengths and gaps in existing data as it might relate to an Australian setting, and to suggest some strategies for developing further research in Australia. Although research findings in other countries suggest that school libraries can have a positive impact on student achievement, the extent to which this body of evidence is transferable to an Australian setting is not obvious. The review has been conducted with the intention of providing a clear and accessible synthesis of existing research to inform subsequent strategic action and research directions in an Australian context.

3 Methodology

This report is based on a critical desktop review, which looked at a range of studies both overseas and in Australia since 1990, including earlier overviews of the research. The short time available for the review meant that in a few cases some promising resources could not be obtained in time and so could not be viewed firsthand, although some have been referred to in the review and included in the bibliography on the basis of their perceived usefulness in several studies. There might well be other resources that are not included but which are potentially useful for some aspects of this topic, such as the training needs of teacher librarians or guidelines for establishing and monitoring information literacy standards. A bibliography was prepared, modified in the light of further investigation, and annotated. Some anecdotal evidence (with a view to establishing whether there is any national data on library staffing demographics and trends) was gathered as the result of telephone conversations with representatives from the Australian Education Union in particular States and Territories. Quantitative data relating to staffing trends from either federal or State or Territory education systems were not available, and the lack of these data impeded the review.

4 Rationale

Several trends since 1990 reinforce the ASLA view that a review of the literature on the impact of school libraries on student achievement is urgently needed. A substantial body of existing research shows a positive relationship between school libraries and achievement, but many of these studies are based on overseas data rather than on specifically Australian data. If practitioners in Australia are to mount a strong case for the importance of school libraries and school librarians here then it is important to know how applicable this research is to an Australian context.

The context in which school librarians and teacher librarians operate has changed noticeably in recent years, with consequent implications for student learning. In particular, the following trends suggest the need for a closer look at the potential role of school librarians in relation to student achievement in Australian schools: an apparent decline in the numbers of qualified teacher librarians employed in school libraries in public schools in Australia; an explosion in information production and the development of increasingly sophisticated information communication technologies (ICTs); changes in educational philosophy and practice, including a greater focus on learning outcomes, evidence-based practice and school accountability; and changes in the nature and role of the teacher librarian as a result of the above trends and developments. All of these point to the timeliness of a review of the literature that describes the impact of school librarians on student achievement.

4.1 Teacher librarian population

In the absence of systematically aggregated national data, it is difficult to gain an accurate picture of national trends in Australia in relation to the staffing of school libraries. Anecdotal evidence, and information gained from several State-based surveys, however, indicate:

- a general shortage of teacher librarians (and other specialist teachers);
- the practice of schools using librarians rather than teacher librarians, or having staff with no library or teaching qualifications at all;
- teacher librarians being used in classrooms as subject teachers to fill gaps in staffing;
- an ageing profession, with retirees not being replaced by sufficient numbers of graduates; and
- added responsibilities for teacher librarians in terms of technology maintenance and student use of technology.

In addition, devolution of financial management to schools means that funding for school libraries relies on the resource allocation priorities established by the school community, which might or might not place a high priority on the need for a well-staffed library system.

An Australian Education Union (AEU) survey in 2002 by the South Australian branch shows that of the 303 work sites that responded, 107 have school libraries staffed below the recommended level and 109 have staff without teacher librarian qualifications (AEU 2002). A position paper by the AEU Tasmanian Branch (AEU 2000) notes that in recent years school libraries have undergone cuts in staffing and resources and that teacher aides have replaced professional staff. Principals, senior staff and parents, the paper suggests, have not sufficiently valued either the school library or the teacher librarian. The paper also points out that teacher librarians 'are being asked to spend more time in the classroom and, as a result, are unable to do literature promotion, book clubs, staff liaison, effective teaching of information and research skills, co-operative teaching and planning, let alone management' (p. 7). The position paper notes that precisely at a time when schools are in the middle of an information explosion 'libraries have been marginalised and considered optional or non-core services in schools' (p. 5). Another discussion paper from the State Library of Tasmania notes a decline of nearly fifty per cent in the number of teacher librarians in Tasmanian schools in the period 1996–2000 and that the student/teacher librarian ratio has increased substantially from 1:875 students in 1996 to 1:1219 in 2000 (State Library of Tasmania 2000). The paper also highlights the inequitable access to human resources in libraries among schools.

An NSW Primary Principals' Association position paper (NSWPPA 2002) notes that whereas previously relief from face-to-face teaching (RFF) was provided by RFF teachers from RFF allocations of two hours per teacher, now many schools use the teacher librarian to deliver part of the RFF program. The paper suggests that information literacy 'is too important to be taught in isolation from other class activities' and that the responsibilities of the teacher librarian are already demanding and complex enough without this added responsibility.

Two recent surveys carried out in Victorian primary and secondary schools confirm this grim scenario. Using the standards developed by ASLA and the Australian Library and Information Association (ALIA) as a benchmark, Welch and Braybrook (2002) found that twenty per cent of schools in Victoria are staffed at a level equal to or above the recommended level and eighty per cent are below this standard, and that seventy per cent of schools in the survey operate below the recommended number of hours needed to staff

school libraries. Reynolds and Carroll (2001) found that since 1983 the number of primary school libraries being staffed by qualified teacher librarians has dropped dramatically from fifty five to thirteen per cent. They also found that twelve per cent of the school libraries in their survey are being managed by someone with no formal qualifications of any kind, although some of these schools had at least one qualified teacher librarian on their staff. The Reynolds and Carroll survey also reveals that many respondents are undertaking other responsibilities in addition to their library ones, such as arts co-ordinator, assistant principal, classroom teacher, integration teacher, information technology co-ordinator, LOTE teacher and literacy co-ordinator.

Kaye (2000) and Alderman (2001) note several trends, including the greying of the profession. Many women in the library profession often opt for early retirement, Kaye suggests, because there are few promotional opportunities open to them. As schools assume greater administrative and financial autonomy, the hiring and firing of staff is increasingly being taken on by the principal rather than the Education Department, with the result that in some schools teacher librarians have had to take on a subject teaching load that compromises their library responsibilities. One consequence of having fewer schools of information and library studies at the tertiary level, and thus fewer graduates moving into the profession, Kay warns, is that there are also fewer strong advocates for school libraries. In Tasmania, for example, until recently, no teacher librarianship course of study was offered. Those wanting to undertake a teacher librarianship course had to enrol externally with mainland institutions. If the numbers of school librarians are not being replenished, and if those teacher librarians who do already work in schools are often being used in other roles, then a review that highlights the positive impact of school librarians on student achievement is an important strategic step.

The Welch–Braybrook and Reynolds–Carroll surveys provide evidence of the decline of library services and staffing in schools (Cotter 2002). The ASLA briefing document for this review acknowledges that in Australia 'there has been a serious decline in the number of qualified teacher librarians employed in school libraries in public schools'. Although this decline is difficult to substantiate in a systematic and substantial way owing to the lack of readily accessible national data, the findings above, taken together with anecdotal evidence from the various States and Territories, confirm the ASLA view that a review of the impact of school libraries on student achievement is urgently needed.

4.2 Information and technology

Perhaps the most significant factor affecting the role of school libraries and school librarians in relation to student achievement is the explosion of information, particularly in relation to digital resources, that has taken place in recent years. Given the vast volumes of information available, the rapidly obsolete nature of much of this information, and the questionable quality of much that is available on the Internet, the role of the school librarian has arguably become even more important than in the past. *Information Power* (American Association of School Librarians 1998), which provides a set of national information literacy standards for library professionals in the United States, describes how the kind of service traditionally supplied by the school library 'has undergone a radical change in emphasis'. No longer does the library simply provide resources for

students; today the library is concerned with creating 'a community of lifelong learners' with the skills to locate, use and evaluate information. Information literacy, the guidelines suggest, is fundamental to the school library program.

Todd (2001a) describes the new information environment as complex and fluid; connective and interactive; and no longer constrained by time and space. Fitzgibbbons (2000) suggests that computer-assisted instruction and computer-based information databases such as CD-ROM encyclopaedias have 'revitalized' the use of libraries. School libraries need to provide better access to these resources and to ensure that students are equipped with the necessary information literacy skills to be able to access and evaluate critically the information they locate. Lance (2000c) points out that the critical factor in relation to the new information and communications technologies (ICTs), such as CD-ROM, video and computer software, is neither the quantity of software programs nor the frequency of computer use but how the programs and computers are being used.

In recognition of the growing importance of information literacy skills that will enable individuals to navigate vast volumes of information, become informed and critical consumers able to participate in everyday transactions, continue their learning after the formal years of schooling have ended, and contribute to a 'knowledge economy', education authorities have sought to encourage the integration of information skills into the curriculum. The ACT Across Curriculum Perspective Statement for information literacy and information technology, for example, describes one of the student learning outcomes for information access as the ability 'to use a wide range of information strategies and processes to explore, enquire and solve problems'. One of the 'overarching learning outcomes' in the Western Australia Curriculum Framework for Kindergarten to Year 12 is that 'students recognise when and what information is needed, locate and obtain it from a range of sources and evaluate, use and share it with others'. The Victorian Curriculum and Assessment Authority gives as an example of a learning outcome that reflects the integration of information and technologies into the Health and Physical Education Curriculum: the preparation of 'a flyer containing text and graphics on how the use of a specific technology has affected the health of people living in a global environment'.[1]

The changing broader context has inevitably had an impact on the nature of the work being done by teacher librarians and the role of libraries in student learning. In an age of vastly increased information production and ever more sophisticated technological means of accessing this information, and in a world in which intellectual capital has replaced physical capital as the prevailing currency in the 'knowledge society', the school librarian—through his/her expertise in 'searching and locating information on the

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[1] These examples are taken respectively from: the Department of Education, Youth and Family Services, ACT Curriculum Frameworks and Across Curriculum Perspective Statement, http://www.decs.act.gov.au/publicat/pdf/infosup4.pdf (accessed 20 December 2002); Western Australia Curriculum Council, Curriculum Framework for Kindergarten to Year 12 Education in Western Australia, http://www.curriculum.wa.edu.au/files/pdf/overarch.pdf (accessed 20 December 2002); and the Victorian and Curriculum Assessment Authority, 'Information and Communications Technology (ICT) in the KLAs', http://vcaa.vic.edu.au/csf/itklas/ithp0304.htm (accessed 20 December 2002).

Internet, incorporating digital information on CD-ROMs in the teaching and learning program, and creating support systems such as databases and setting up local area networks within the school community' (AEU 2000, p. 3)—has assumed a pivotal role in preparing students to become lifelong learners and astute evaluators of information.

Many of the documents looked at in the course of this review highlight the potentially important leadership role of the school librarian in ensuring that both students and teachers are information literate, although the field is too new for a substantial body of research into the nature of the impact of school librarians on the information skills acquisition of students and staff to exist.

Welch and Braybrook (2001) note that the advent of electronic access to information 'is transforming the concept of collection and the physical entity of the library itself' (p. 4). Such a paradigmatic shift in the profession, they suggest, needs 'a different approach to the measurement of worth and value of school libraries' (p. 4). One of the conclusions drawn from their survey was that the whole context of school libraries is changing and that 'the collection of data has to be allied to an educational outcome rather than just a benchmark or standard' (p. 4).

4.3 The new learning environment

Along with changes in the amount and quality of information potentially available to students, and the increasingly sophisticated technological means of accessing this information, the most significant change for school libraries in terms of educational practice has been the shift from a content-based education to an outcomes-based education. Whereas a content-based education focuses on what students have been taught, an outcomes-based education focuses on what students have learned; that is, on their skills and understandings. An ASLA discussion paper (2001) notes the emergence of curriculum statements in the various States and Territories that emphasise the processes of learning and information literacy, including 'independent, integrated resources-based and technology-based inquiry learning' and collaborative project-based learning. In an influential study, Kuhlthau (1989) points out how the process approach can be confronting because it means that it is no longer acceptable for teachers simply to cover the content of a particular curriculum program or to teach for a particular test; rather they need to restructure their programs so that students are actively involved in using information or learning. Kuhlthau shows how a process approach to information use has the potential to empower school librarians as well as offering them a tool for collaborating with teachers.

Loertscher (1999) looks at the growing popularity of constructivism, which encourages students to take control of their own learning. Kuhlthau (1993) talks about the constructivist theory of learning, which builds on what students already know and actively involves them with a range of resources. These changes in approaches to teaching and learning have required school librarians to adopt a more outcomes-focused practice and a focus on information literacy as opposed to a collections-based practice.

The concept of lifelong learning also has implications for the school library. In a society that needs multi-skilled workers capable of adapting to a rapidly changing external environment, including an increasingly digitised world, the emphasis is on encouraging those skills that will enable individuals to learn throughout their lives and not merely during the years of compulsory schooling. According to the European Commission's *Memorandum on Lifelong Learning*, 'learning how to learn, to adapt to change and to make sense of vast information flows are now generic skills that everyone should acquire' (Commission of the European Communities, 2000, p. 11). This impetus from governments globally to equip their citizens with the skills to function effectively in an increasingly digitised world, adapt readily to new situations, and acquire new skills quickly potentially gives the school librarian a crucial role in helping students 'learn to learn'.

As Williams and Wavell (2001b) point out, traditional evaluations of library services have focused on outputs relating to expenditure, resources and use rather than on service outcomes. Even when performance indicators have been identified in relation to student achievement, these have often been framed in terms of performance on reading tests rather than in terms of curricular goals or broader learning outcomes; hence the need to gain a better understanding of the nature of the contribution of school libraries to student learning more generally and information literacy more specifically. Todd (2002c) makes a similar point when he suggests that evidence-based practice requires the gathering of 'meaningful and systematic evidence of the impact of the librarian's instructional initiatives on student learning outcomes—what students can do and become' (p. 7). Rather than focusing on such things as expenditure, collection size, staffing and technology infrastructure, the focus now must be on outcomes in relation to what students have learned.

Along with these developments there has also been a growing trend towards evidence-based practice in the professions, which means using the best research available to inform day-to-day practice and decision-making. Evidence-based practice in a school library context, Todd (2002c, p. 7) suggests, centres on the key questions of: 'what differences do my library and its learning initiatives make to student learning? What has my library and its learning initiatives enabled my students to become?' The growing need for evidence-based research as the basis for decision-making, policy and planning means that school librarians need to be more aware of the kind of evidence that is available, its reliability, and its relevance to an Australian context.

4.4 Accountability

As well as the development of curriculum frameworks that support the introduction of information literacy standards in defining learning outcomes, a stronger focus at both federal and State levels on literacy and numeracy skills, and a move towards more collaborative school planning, decision-making and management, greater accountability for schools administering global budgets (and making staffing decisions) has meant a consequent emphasis on performance indicators and quality assurance. As Williams, Wavell and Coles (2001) point out, the need to use data to show the effective impact in terms of outcomes rather than outputs 'poses new challenges for demonstrating impact in areas such as attainment and learning' (p. 3). Hence the question becomes: what are the

indicators for effective learning in the school library? If school libraries are to be adequately staffed and resourced, and if their expertise is to be considered fundamental to curriculum development rather than complementary or peripheral, then their impact on student learning needs to be made explicit. Oberg (2001b) points out that the question of how school libraries can show that they make a difference in student learning is not a new question but has 'a particular urgency at this time' (p. 15) because of the demands for accountability and measurable outcomes.

4.5 Changing role of school libraries

Harvey (2001) refers to the general trends identified in a 2001 study by Tilley and Callison, in which they note a shift away from 'audiovisual, library skills, selection of materials, isolated skill sets, resource input, general resources' towards 'multimedia and telecommunications, information literacy and inquiry, learner needs analysis, collaboration and curriculum integration and learner performance diversification to target unique needs' (Harvey, p. 11). Harvey notes that library education is becoming more focused on users and their needs and less focused on the library and its particular practices.

While the school librarian's job today, at a fundamental level, remains the same in that it is still about facilitating access to information, it has also become more complex and demanding. The responses to a small informal survey of teacher librarians in Australia (Todd 2001a) reveal the extra challenges associated with developing and maintaining digital collections and services. Respondents indicated that they were now faced with maintaining information technology equipment and servicing the needs of users, and are being forced to assume the various roles of web master, network password administrator, professional development organiser for staff, computer technician with no extra staff or time allowance, and facilitator of technology use for both students and teachers (p. 6).

Book (2002) also notes an increased expectation that school librarians will supervise students' Internet usage, assist with home page and website development, help teachers with the intranet, provide staff professional development, assist with data retrieval, and the uploading and downloading of software and programs, and be responsible for system back-ups and general maintenance—'all this *on top of* their role of co-ordinating information literacy rather than as a replacement thereof' (p. 19). The changes, Book suggests, have meant a greater demand on the time, skills and energy of school librarians.

The post-1990 research studies that examine the relationship between school libraries and student achievement have thus been conducted against a background of these broader changes in school library demographics, profound developments in information and technology, a shift to outcomes-based education and an inquiry-based approach to learning, generic skills and lifelong learning, and greater accountability in the form of performance indicators. At the same time, it is worth remembering that, as Prestebak (2001) points out, the three elements of libraries, 'information, education, and recreation', have changed little since 1918. Although the school library has evolved in response to the kinds of radical changes outlined in this review, these three services are still fundamental to the work of the school librarian.

5 The research

There is certainly no shortage of research that investigates the link between school libraries and student achievement. According to Lance (2001A), over the past sixty or so years there have been around seventy-five studies on the impact of school library media programs on academic achievement. From this large body of research he identifies some of the key trends as being:

- better academic performance by students when the library professional is part of a planning and teaching team with the classroom teacher, teaches information literacy, and provides one-on-one tutoring for students in need;
- quality resource collections to support the curriculum;
- state-of-the-art technology integrated into the learning and teaching processes; and
- cooperation between school and other types of libraries, especially public libraries.

Since 2000 alone at least ten major studies (in Alaska, Pennsylvania, Colorado, Texas, Oregon, Massachusetts, Scotland and, more recently, Iowa, Michigan and New Mexico) have investigated the positive impact school libraries can have on student achievement. Much of the research that has been done on the link between school libraries and student achievement has been conducted in the United States, particularly the large-scale studies that look at students' performance on standardised tests. Abell (1999) notes that the research tradition that exists in the United States, which 'centres on student achievement in reading, study skills and several aspects of the school library program' (p. 21), has no parallel in Australia. This is not to suggest that this lack of a similar research tradition represents a significant weakness in Australian research. As Nimon (1995) points out, the studies 'are based on a single concept of how children learn best and this concept is not one universally adopted' (p. 2). This is why Nimon proclaims an important role of the International Association of School Librarianship (IASL) to be that of fostering research in a wide range of countries so that a better understanding of how children learn, and how school libraries might facilitate this learning, can be achieved.

In their comprehensive review of the literature on educational achievement and school libraries in Scotland, Williams, Wavell and Coles (2001) make a useful distinction between the impact of school libraries on academic achievement (as represented by performance in tests), broader learning issues (that is, personal achievement in other areas of learning), service provision (the type of services provided and the degree of collaboration between school and other libraries), and professional expertise (the qualifications and experience and attitudes of library staff). Yoo (1998) looks at the educational impact of the school library in terms of academic achievement, reading skills, student attitudes towards reading and the school library, and second language acquisition in the case of students from immigrant backgrounds. In their extensive review of the literature, Lance et al. (2002) group the various studies according to topics—such as the positive effects of flexible scheduling, the school–public library relationship, and the role of technology in student achievement. Other reviews tend to group studies by author(s) or by chronology rather than by themes. The Australian tradition of research into school libraries and student achievement would seem to be focused more on learning in a

broader sense than on the kind of learning encapsulated in the Lance studies. In this review student achievement has accordingly been broken down into:

- academic achievement (as represented in standardised tests);
- reading literacy (including reading for pleasure);
- broader learning (such as information skills, improved self-concept); and
- other (such as impact on particular subgroups).

5.1 Academic attainment

Haycock (1995a, 1995b) presents a useful overview of the evidence that links school libraries and student achievement. Although the focus of the current review is on research completed since 1990, it is useful to note the key research findings in a range of pre-1990 studies which show that:

- in schools with good libraries and the services of a school librarian students perform significantly better on tests for basic research skills;
- students perform significantly better in reading comprehension and in their ability to express effectively ideas in relation to their reading;
- more reading occurs when there is a school library;
- the guidance of a librarian appears to exert significant influence on student achievement in information-gathering;
- in schools with good libraries and full-time librarians, students perform better at higher levels in reading comprehension, and in knowledge and use of reference materials than students in schools with minimal or no library service;
- student achievement in reading, study skills and use of newspapers was significantly greater at seventh grade level in schools with professional librarians than in schools without them.

Since the introduction of the *Information Power* guidelines in 1988, Haycock suggests, research has mostly focused on the instructional role of the librarian.

The most influential body of research into the impact of school libraries on student achievement is that of Keith Curry Lance and his colleagues in the United States. To date studies have been conducted in eight states and several researchers have replicated his model in other states. A distinguishing feature of the Lance model is that it controls for social and community variables. Although the studies confirm that students' socioeconomic status (represented by the percentage of students eligible for National School Lunch Programs and the percentage of minority students) is the most powerful predictor of student performance on state reading tests, they also show that after accounting for the impact on academic achievement of socioeconomic conditions, 'library media predictors almost always outperformed other school characteristics, such as teacher–pupil ratio and per pupil expenditure' (Lance 2001a, p. 6.) This body of research is important not only for what it reveals about the positive impact of school libraries on student achievement but also for its replicability, at least in the United States.

The first Colorado study by Lance and associates was carried out in 1991–92 using 1988–89 data collected by the Colorado Department of Education (Lance 1993). The study focused on 221 public schools in Colorado and student performance on the Iowa Test of Basic Skills (ITBS) (for elementary and junior school students) or the Test of Achievement and Proficiency (TAP) (for secondary students). Designed to gain better empirical evidence of the nature of the relationship between school libraries and achievement in Colorado's public schools, the study focused on three issues in particular: the relationship between expenditure of school libraries and test performance; the characteristics of the school library programs that explained this relationship; and the contribution of library specialists to student test performance.

The study identified several aspects of school library service as direct and/or indirect predictors of academic achievement while controlling for a range of other school and community variables. In particular, it was found that the size of a school library's staff and collection is the best school predictor of academic achievement, represented in this study by reading scores alone. According to the study, students who score higher on norm-referenced tests tend to come from schools with more library staff, more books, more periodicals and more videos (Lance et al. 1993). The school librarian was found in the first Colorado study to contribute to student academic achievement by shaping the school library collection and collaborating with classroom teachers.

Despite its original contribution to the research on school libraries and student achievement, there were some limitations in the original study, which Lance sought to address in subsequent studies. The greatest limitation Lance identified was the use of norm-referenced test scores to 'operationalise academic achievement'. At the time of the first Colorado study authentic assessment techniques had only just begun to replace norm-referenced tests. Other limitations identified were the lack of available data for many potential library, school and community predictors, such as data related to alternative teaching styles, prevalence of disciplinary problems, and student turnover rate, the way in which information skills are taught, how teachers and library specialists plan co-operatively, and the role of technology in the school libraries. Most of the data were also collected before the release of *Information Power*, the national guidelines for school library media programs, whereas more recent studies undertaken by Lance and colleagues have been able to use the guidelines as a framework for examining the multiple roles of the school librarian.

The findings of the first Colorado study in relation to the upper grade levels could also have been strengthened, Lance suggests, as the numbers of schools involved in the analysis at these upper grade levels was sometimes quite small (Lance 1994). Another limitation that Lance was keen to address was that although the first Colorado study acknowledged the importance of the instructional role of the librarian, it did not define what this meant or address issues related to the value of having principal and teacher support. Nor did it demonstrate the relationship of information technology to student achievement (Lance 2001a).

The second Colorado study sought to redress some of these shortcomings and to determine whether the results of the first Colorado study held up over time, across states,

and when a state's standards-based test was substituted for a norm-referenced test (Lance 2001a, p. 3). Unlike the first Colorado study, which focused on grades 1, 2, 4, 5, 7 and 10, the second Colorado study looked only at grades 4 and 7, which Williams, Wavell and Coles (2001) suggest could be a possible weakness, as it means that the findings are not necessarily applicable to secondary education, 'especially when the very different teaching methods are taken into account' (p. 9). Other studies undertaken by Lance have been more balanced in this respect, although the body of research on school libraries and student achievement as a whole seems to have focused more on primary school students than on secondary school students.

A series of library variables was used to predict student performance on the Colorado Student Assessment Program (CSAP) reading test. The study found that CSAP reading scores increase with increases in school library program development (such as library staff hours per students, print volumes per students, library expenditures per student); information technology (where networked computers link with other instructional sites); collaboration between teachers and library specialists (including the amount of professional development time school librarians spend with teachers); and individual visits to the school library (particularly where flexible scheduling allows students to visit the school library as an individual rather than as part of a group). The indirect predictor of student achievement was the leadership involvement of the library staff; that is, the more involved the library specialist, the higher the level of collaboration, which in turn has an impact on test scores (Lance 2000b).

Using more comprehensive data than in the first Colorado study, the second study weighed the relative effects on academic achievement of librarian staffing, other school characteristics (such as per pupil spending, teacher-pupil ratio) and community conditions (such as adult educational attainment, poverty). 'While community conditions proved to have the strongest impact, and instructional expenditures per pupil proved a strong factor at the secondary level, the librarian–pupil ratio outweighed both per pupil expenditures and teacher–pupil ratio at the elementary level and added to the effects of teacher–pupil ratio at the secondary level' (Lance 2000b, p. 7). As with other studies conducted by Lance et al., the findings cannot be explained away by school or community differences.

According to Lance (2001a), the second Colorado study was the first 'to distinguish between the leadership and collaboration activities of library media specialists and to demonstrate the critical pro-active contribution of leadership activities to setting the stage for collaboration and, in turn, higher achievement levels for students' (p. 5). Examples of such leadership and collaboration include spending time attending faculty and curriculum meetings, meeting with the principal, providing information skills training for teachers, meeting with other library professionals, planning programs with teachers and supporting computer technology in the library. Although the study points to the importance of networked computers linked to library resources, it 'does not discuss to what extent the resources were used by students or whether ICT skills which are unrelated to test scores might have a bearing on test scores' (Williams, Wavell and Coles, p. 10).

The Alaska study (Lance 2000a) was based on a 1997–98 survey of school libraries in Alaska and used multiple analysis techniques to assess each library program characteristic

as a potential predictor of academic achievement. The focus was on students in Years 5, 8 and 11, thus offering more adequate representation at the secondary level. Its findings support and build on the earlier studies. The study found that it is as teachers, information specialists, and program administrators that school librarians generate their influence on academic achievement. A significant finding of the Alaska study was that schools with more library staff spend more time teaching information literacy, 'resulting in more student visits to library media centers and, in turn, higher reading scores' (Lance 2001a, p. 4). Lance notes that the Alaska study was the first to identify the importance of the school librarian as a teacher of information literacy and the impact of the achievement of the library specialist as an in-service trainer of staff (Lance 2001a).

Similar results were found in the Pennsylvania study (Lance 2000C), where Pennsylvania System of School Assessment (PSSA) reading scores were shown to increase with increases in staffing, information technology, and the integration of information literacy into the curriculum. It was also found that as library staffing, information resources and information technology increase, so too does school librarian involvement in teaching information skills to students, a relationship that cannot be explained away by other school (such as expenditures per student, teacher characteristics, teacher–pupil ratio, student characteristics) or community conditions (such as adult educational attainment, families in poverty, racial/ethnic demographics) conditions. The Pennsylvania study shows the importance of an integrated approach to information literacy teaching.

Similarly, the Oregon study (Lance 2001b) found that Oregon reading test scores increase with increases in total staff hours per 100 students (including both professional and support staff), print volumes per student, periodical subscriptions per 100 students, and library media expenditures per student. Program development alone accounted for a three to five per cent variation in Oregon reading scores, with the exception of the high school level, where community factors are said to have masked the impact of the library program. This trend, in which the impact of library programs decreases as high school students near graduation, is consistent with the pattern revealed in the original Colorado study.

More recently, and following in the same tradition as the earlier state-based studies, research was conducted into the impact of school library programs in Iowa. The main focus was on the reading test scores of students in grades 4, 8 and 11. As well as looking at the characteristics of library staff that affect student academic achievement, and the contribution of collaboration between school librarians and teachers to the effectiveness of the library programs, the study also sought to investigate 'the growing role of information technology' in school library programs, especially in regard to licences, databases and the Internet.

As with the earlier Lance studies, the research shows that Iowa reading test scores increase with the development of school library programs (Rodney, Lance, Hamilton-Pennell 2003). Taking other factors into account, this development alone is said to account for about 2.5 per cent of the variation in the reading test scores for students in grades 4 and 8. The school librarian, the Iowa study shows, exerts 'a complex web of effects' on the library programs (p. ix). An effective school library program is said to be one that:

- is adequately staffed, stocked and funded; the relationship between this aspect and achievement is incremental: as staffing, funding and size of collection rise, reading scores increase;
- has staff who are active leaders in the 'teaching and learning enterprise' of the school;
- enjoys a close working relationship with classroom teachers through collaborative planning of instructional units, the provision of information literacy skills to students, and the provision of in-service training to teachers; and
- embraces networked information technology (p. ix).

Similar studies were carried out in Massachusetts (Baughman 2000) and Texas (Smith 2001). The Massachusetts study found a strong correlation between school libraries and student achievement. Mean Massachusetts Comprehensive Assessment System (MCAS) scores were higher in schools that had school library programs at all levels as opposed to schools that do not have such programs. The study showed that 'the highest achieving students attend schools with good school libraries' (Baughman, p. 10.) Other findings were that at each level, higher MCAS scores were associated with increased use of the school library, higher per pupil book count, and longer opening hours. At the elementary and middle/junior high school levels, students also scored higher on the MCAS when there was a library instruction program and larger per pupil expenditures for school library resources.

Similarly, Smith's study (2001), which examined data from a random sample of 600 Texan school libraries, at elementary, junior and high school levels, as well as community socioeconomic data, in order to determine the impact of school libraries on student performance, found that students achieved higher scores on the Texas Assessment of Academic Skills (TAAS) at each level in schools with teacher librarians than in schools without librarians. The study used more than 200 variables to examine the relationship between libraries and TAAS performance, including thirty-four identified as significant indicators of library performance. These variables were grouped into the areas of program development, leadership, collaboration through teaching, library technology and school technology.

In a similar pattern to the Colorado studies, the Texas research showed that whereas socioeconomic variables—such as the percentage of white students, Hispanic and economically disadvantaged students—explain most of the variance in TAAS performance at all educational levels, library variables explained about four per cent of the variance in TAAS performance at the elementary and middle/junior high school levels and just over eight per cent at the high school level (Smith p. 2). The study also found that library variables were generally more important in explaining TAAS variance than school variables, such as the number of computers per student, teacher experience, and teacher turnover rate. The study reveals that 'library staffing levels, collection sizes, librarian interaction with teachers and students, and library technology levels have a positive association with TAAS performance at the elementary, middle/junior high, and high school levels' (p. 3).

At the same time, test performance was found to be associated with different library variables at each level. At elementary school the most influential library variables were collection expenditure, Internet connection and software packages; at middle/junior high level, the significant library variables were identifying materials for instructional units developed by teachers and providing information skills instruction to individuals or groups; and at high school level the library variables found to be important were library hours of operation and staffing levels, collection size and numbers of subscriptions, planning instructional units with teachers, and providing staff development to teachers. Smith concludes that while a causal relationship between school library activity and TAAS performance cannot be 'unequivocally proven', such a relationship is 'highly plausible' (p. 2). One significant finding of the study was that 'libraries can play a very special role in providing enrichment to those students who come from economically disadvantaged backgrounds and who need additional help to develop the skills they will need to succeed' (p. 3).

Another important source of evidence showing the positive impact of school libraries on student achievement relates to the Library Power initiative. This initiative was set up in 1988 when the DeWitt Wallace-Reader's Digest Fund provided funding to nineteen communities in the United States to improve their school library programs. The studies draw on both qualitative and quantitative data. The data from the schools involved in the studies demonstrate that 'improvements to the library facilities and collection and an emphasis on collaboration between the librarian and teachers are contributing factors to the impact on academic achievement, but that school readiness to accept changes of roles and teaching styles also play a part in sustaining the impact' (Williams, Wavell and Coles, 2001, p. 12).

Oberg's (1999) case study of the Library Power initiative at Lakeside Elementary School in Tennessee was conducted in 1996–97, and uses data gathered from observations, interviews and school documents, as well as scores on the Tennessee Comprehensive Assessment Program (TCAP) tests. The Library Power initiative at Lakeside Elementary began in 1994–95 with the aim of improving student learning by improving school library programs. Although the subsequent 'dramatic improvement in student performance' cannot be attributed solely to the implementation of the Library Power initiative, there is enough evidence to suggest it has made a significant contribution to the positive trend in student achievement that has taken place. Some of the changes to occur as part of the Library Power initiative included more collaborative planning by the librarian and teachers, greater curriculum alignment, flexible scheduling, which allowed students the opportunity to demonstrate independent research skills in the library, a more student-centred approach to learning, improved library collections and facilities, and mandated professional development for teachers.

Some of the evidence attributable at least in part to the impact of the Library Power initiative at Lakeside Elementary School included greater library use by students for both free voluntary reading and curriculum-based projects, more challenging items being selected for personal reading, an improvement in the quality of children's work in the classroom (such as writing reports in their own words), and positive comments made by teachers in regard to the collaborative partnership with the library. When the librarian at

Lakeside Elementary compared library use statistics for each classroom with the average TCAP scores for each classroom, 'she found that reading and reference scores began to climb as library use increased' (Oberg, p. 72). Pharr (2002) similarly reports on the impact of the Library Power initiative at the Lakeside Academy of Math, Science and Technology in Tennessee. She notes that after one year of flexible scheduling, when all library projects had been developed through teacher–librarian collaboration, there was a direct correlation between library usage and improved tests scores. Those teachers with the highest rate of library usage also had the highest test scores whereas the teacher who used the library least also had the lowest mastery scores (Pharr 2002).

A study of the impact of the Library Power initiative in seven schools in Philadelphia during 1996–97 drew on interviews with librarians and principals, observation, focus group discussions with librarians, book circulation figures, teacher collaboration information and document analysis (Philadelphia Education Fund 1997a). The most noticeable changes implemented under the initiative were refurbishment of the library; updating of collections and new resources; teachers' preparation of curriculum outlines that would enable the library to purchase relevant materials for topics; flexible scheduling so that students could use the library on an individual, group or classroom basis; student checkout of books and book circulation; degree of collaboration between librarians and teachers; partnerships with other libraries; and professional development for librarians. The extent to which these changes were implemented effectively depended on four variables: the principal's support for the initiative, the librarian's skills and commitment, the professional culture of the school, and school size.

The study found that implementation levels varied among the participating schools and that results tended to be mixed. It was found that although the library's resources remained under-utilised overall, 'the quality of student's use of the library has improved. Indeed, librarians cited students' new love of reading as the most rewarding aspect of the initiative' (Philadelphia Education Fund 1997a, p. 26). According to another Philadelphia Education Fund report (Philadelphia Education Fund 1997b?), there is ample evidence to show the ways in which Library Power is supporting student achievement. Indicators of this positive impact include student use of the library to gather information for class projects and recreational reading, student research on projects that have been developed jointly by teachers and librarians, and student ability to recognise the availability of resources relevant to their needs.

A longitudinal study of the impact of Library Power on participating schools, undertaken by researchers from the University of Wisconsin, used data collected from more than 1000 teachers, 400 principals and 400 library media specialists (Zweizig et al. 1999). Conducted over four years from 1994 to 1998, the study found that, as a result of the changes generated by Library Power, schools were able to 'engage students in meaningful and educationally rich learning activities. Instead of being limited to classroom lectures and textbook assignments, by using library resources—books, CD ROMs and the internet, students were able to explore topics in more depth' (Zweizig, p. 14). The study also found that students increased their use of the school library, used the library more on their own initiative, and had a more positive attitude towards using the library. Perhaps the most significant finding of the research into the impact of Library

Power on schools is the potential for school library reform 'to leverage important improvements in classroom practice and professional relationships', and to demonstrate to schools that library resources and practices can be used effectively to 'promote a shared curriculum and contribute powerfully to improve instruction' (Zweizig, p. 23).

5.2 Reading literacy

The evidence linking school libraries with student achievement in terms of literacy is less abundant than that which focuses on reading scores on state tests. One international study that points to a clear link between school libraries and reading literacy is the International Association for the Evaluation of Educational Achievements (IEA) Reading Literacy Study, carried out in 1990–91 with fourteen-year-olds and nine-year-olds in thirty-two countries. For the purposes of the IEA study, reading literacy was defined as 'the ability to understand and use those written language forms required by the society and/or valued by the individual' (Elley 1992, p. 3).

The study identified several factors relevant to school libraries in explaining the differences observed between high-scoring countries and low-scoring countries, including large school libraries, large classroom libraries and frequency of book borrowing (Elley, p. xii). The highest scoring countries also typically offered greater access to books in the home, school and community libraries and/or book stores (Elley, p. xiii), although when adjusted for economic and social conditions, it was found that this factor dropped considerably in importance. The policy of having large classroom libraries, however, was found to be 'one of the most important differential policies between high-scoring and low-scoring countries' and not merely a function of affluence. It was a powerful indicator for both student populations (nine-year-olds and fourteen-year-olds). Indeed, after adjustment for economic and social conditions, this factor gained rather than diminished in importance. Elley concludes that although the observed difference between high- and low-scoring countries in relation to frequency of book borrowing was reduced after adjustment, there was enough difference to warrant further investigation (Elley, p. 43). The study found that 'a regular increase in average test score was observed with increases in library size across all countries and within most of them' (Elley, p. 67), sufficient to show that 'a large stock of books is a prerequisite for an effective reading program' (Elley, p. 67). Researchers found the quantity of resources in the school library to be a powerful predictor of reading scores: the less developed countries with better school libraries 'were closer to the test scores of affluent countries, suggesting that a good school library can make up part of the gap between the rich and poor in literacy development' (Gniewek 1999, p. 2).

Froese (1997) uses data from the 1992 IEA study to look more closely at the contribution of school libraries to reading literacy as indicated in the test scores. Focusing on the test results of nine-year-olds in British Columbia, Froese found that students in classrooms with access to school libraries achieve higher (in terms of reading scores) than those who do not have such access, and that students who have many books in their homes achieve at higher levels than those who have fewer books. The study also indicates that although there is a strong correlation between borrowing books from a school library and reading achievement, borrowing books from classroom libraries does not have the same impact.

Froese concludes that the relationships between resources and practices to student achievement 'are not as simple or as direct as one might hope' (p. 306).

Novljan (1998) reports the findings of the IEA study in relation to Slovenia, suggesting that the mean reading test scores of students in schools that employed a professional librarian were 'significantly higher' than the results obtained in schools where a teacher was responsible for the library. In Slovenia, 'better test results were closely related to the existence of large school libraries (approximately 7,000 books), large classroom libraries (approximately sixty books) and regular effective lending of books' (p. 229). The study found that 'the presence of a librarian rather than a teacher had little influence in most environments, but made a significant difference in large towns' (p. 231) and that 'a library worker trained in librarianship is a positive factor in the development of reading literacy' (p. 231).

Research carried out by Krashen has shown that free voluntary reading has a positive impact on reading comprehension, vocabulary, spelling ability, grammar usage and writing style, and that children who read more typically have higher literacy development (Krashen 1993, 1998). Utilising data from forty-one states, Krashen (1995) found that the number of books per student in the school library was one of the best predictors of how students would go on the National Assessment of Educational Progress (NAEP) fourth-grade reading test. Although the amount of software in the school libraries was associated positively with reading score, this was not significantly so. One unanticipated result from the 1995 study was that increased library services were associated with lower reading scores, a negative relationship that led Krashen to speculate that perhaps librarians in states with lower reading scores and less access to books try to compensate by providing more services. Haycock, however, suggests that such a result might be the outcome when school librarians 'who rate personal relations as a lower priority spend more time on circulation and related tasks' (Haycock 1992, cited in Nimon 1995). Krashen (1998) also points out the negative correlation between poverty and the amount of print at home and the positive relationship between the amount of print at home and the amount of reading children do. He found that students in high-achieving schools in affluent areas are able to visit the school library more often and are more likely to be allowed to take books home, whereas children in high poverty schools have less access to the limited range of services their libraries offer (Krashen 1998).

In Australia, Masters and Forster (1997) map literacy achievements among Year 3 and 5 students in Australian schools in reading, writing, speaking, listening and viewing. The study identifies several school and teacher variables that were significantly associated with literacy achievement, other things being equal, including extensive use of the school library by each teacher's class. This factor was associated with a difference of as many as twenty-seven points in students' literacy achievements when compared with non-use of the library (Masters and Forster p. 207).

Yoo's 1998 review of research into the school library contribution to student achievement refers to two studies that show improved attitudes towards reading. The first by Bracy in 1996 found that although the school library was the main source of reading materials for North Carolina students, the influence of teachers or librarians in book selection was not

statistically significant. The second study by Johnson in 1990 relates the results of a program designed to improve the negative attitudes towards reading of eight junior high school students. The students used the library on a weekly basis and 'were given a variety of strategies for independent learning along with a broad range of recreational and content area reading materials' (Yoo 1998, p. 14). A survey of reading attitudes showed 'positive gains' among the eight students after a year.

5.3 Broader learning

The studies that focus on broader aspects of student learning, such as student motivation or the ability to undertake independent research, tend to make use of qualitative research and to be smaller in scale than those that focus on academic achievement as measured by test performance.

In their study of the impact of the school library on learning in a selection of secondary schools in Scotland, Williams and Wavell (2001a, 2001b) consider learning in its broadest sense. The first part of the project used focus group discussions with teachers and students and interviews with librarians to identify participants' perceptions of how school libraries contribute to learning, whereas the second phase of the study used case studies to identify whether these expectations were being fulfilled in practice. The potential impact of the school library on learning was judged by teachers in terms of their broad expectations rather than according to observations of actual learning impact.

The study looked at the contribution of the school library to student learning in the four areas of motivation, progression, independence and interaction. One of the difficulties with such a study is that some aspects of learning are more difficult to monitor and assess than others. For each of the four areas Williams and Wavell identified indicators that would enable them to determine whether these learning experiences had actually taken place. Evidence of motivation, for example, included students' verbal and written expression of enthusiasm; willingness to take part in the prescribed activity; degree of absorption in the task; student willingness to continue their work either by returning to the school library or at home; and a change in attitude towards work over time (Williams and Wavell 2001b). The study did not attempt to isolate the impact on learning of the school library from other variables affecting learning but sought to monitor the learning experiences within the school library of the selected schools over a short period of time, seeing the process of monitoring impact as important as the evidence of actual impact. Monitoring was carried out through observation, discussion with staff and students, and examination of written work and reader records. The study found that the school library 'does have an impact on a broad range of learning', but that 'if the learning potential is to be fully maximised' there is a need for greater dialogue between librarian and teachers (Williams and Wavell 2001a, p. 126). The study found evidence to support the view that school libraries can contribute to the development of a variety of information skills in students, encourage the 'disposition' of students towards social and individual responsibility, and enhance the learning opportunities for those who already have the skills to become independent learners. However, use of the school library in itself did not motivate students to learn, Williams and Wavell found, and students with poor

information handling skills need additional support to make their use of the library more effective.

Kinnell (1994) looked at the ways in which good school libraries meet the needs of students and teachers in a small group of secondary schools in England that were identified as exemplifying good practice. The study took place over four terms and involved a case study investigation of six schools and action research by the librarians themselves in another six schools. Data was gathered via interviews, observation, school documentation and survey questionnaires of 150 teachers and more than 800 students. The study found that the school library played a significant role in developing cross-curricular skills, such as communication, numeracy, study, problem-solving, personal and social, and use of information technology; that it helped to bridge the gap between primary and secondary schools; and that it helped in the development of information technology skills. The questionnaires showed that although textbooks and worksheets still made up around two-thirds of their teaching resources, library books and software were also significant resources.

In their review of the literature on the benefits of library use in schools, Information Management Associates (2002) refer to early United Kingdom library research that identifies eight key areas in which the school library could have a positive effect on teaching and learning. This early research suggests that the school library can help to shape the learning environment; provide a variety of learning experiences; support systematic skills development and research; provide access to a wider world of information; encourage and support learning; facilitate differentiation/equal access to the curriculum; enhance self-esteem and independent learning; and offer careers guidance. More recent research by Williams and Wavell (2001a) highlights the school library's role in motivating learning, teaching specific skills, fostering independent learning and encouraging collaborative learning.

Todd's work on the impact of integrated skills instruction on students in Australian secondary schools shows a positive correlation between mastery of information seeking skills and learning outcomes, such as improved test scores, better recall and concentration, and improved reflective thinking (Todd 1995). The 1995 study also suggests a link between information literacy (that is, information seeking skills) and positive attitudes towards learning, self-esteem and school. In this study Todd defines 'information skills' as the ability to use information purposefully and effectively.

Todd's 1995 study builds on his earlier work in which a group of low-achieving Year 9 students who undertook a science program based on the integrated skills approach showed improved mastery of content (Sivanesarajah et al. 1993). As part of the same study, data were also collected subsequently from Years 7 and 11 students, which provide further evidence to support the contention that an integrated information skills approach can have a positive impact on learning outcomes (Todd 1993). In this case the improvement was noted in test scores, recall, increased concentration and focus on the task, and improved reflective thinking.

In his 1995 study Todd looked again at the impact of an integrated content and information skills program on learning and on student attitudes in Year 7 science classes at one school. Two classes in the control group received the prescribed science content without any integration of information skills instruction. Teachers of these two classes worked independently of the school library staff. The two treatment classes on the other hand were given formal instruction in information skills as part of an integrated curriculum approach with the science teachers working collaboratively with library professionals. The study found that 'integrated information skills instruction has a positive impact on students' abilities to identify information-handling strategies to solve their information needs in a particular curriculum content area' (p. 8). One apparently anomalous finding, not consistent with the 1992 study, was that below-average students did not appear to make any improvement in their science scores through integrated information skills instruction, suggesting that the effect of information skills instruction was not consistent across ability levels. One explanation suggested by Todd is that in the earlier study the Year 7 students were not in a mixed ability class.

Todd concludes that information skills instruction appears to have had a significant positive impact on students' mastery of prescribed science content and on their ability to use a range of information skills to solve particular problems. Todd points out that current understandings of the impact of integrated information skills instruction on student learning are based mainly on anecdotal evidence rather than on a systematic investigation. In the absence of other studies, he suggests, it is difficult to make generalisations, and further research is needed to test the conclusions of his 1995 research.

Kuhlthau's (1993) case study of a junior high school in New York, carried out over four years and using a range of qualitative data, identified four 'enablers' or features of a successfully implemented process approach to information skills: a collaborative approach to teaching; a constructivist approach to learning; a commitment to developing lifelong skills; and competence in designing activities to improve student learning. Although the study mainly focuses on the implementation of a process approach to information skills from the point of view of the staff involved, it is clear that students also gained. The study shows that in this particular school student engagement in learning 'was clearly evident', that students were 'on task' and working cooperatively alongside others of differing abilities and learning from each other, and that students had 'an emotional attachment' to the problem they were investigating. The collaborative approach between school library professionals and teachers and the commitment to helping students take responsibility for their own learning led to identifiable improvements in student engagement and achievement.

One of the few studies to find no association between frequent use of school libraries and student academic achievement was a longitudinal study of trainee teachers in South Africa (Olën 1995). Carried out in 1990 when the students commenced their teacher training and again in 1993 when they were in their final year, the study used cross-tabulations of students' academic achievement to determine whether there was any association 'between the frequency and type of use and academic success or failure during the period of initial teacher education'. The study also showed that the library was

mainly used for projects and to consult reference books. Although two earlier studies had similar findings, Olën suggests that the results of her study are not generalisable as it was focused on a specific population of students entering teacher education. She also points out that her study and the earlier ones were both quantitative and that there is a need for more qualitative research into the impact of the information skills programs of school libraries on tertiary-level achievement.

5.4 Other

Relatively few studies seem to have focused on the impact of school libraries on particular groups of students, such as those with disabilities or from a non-English-speaking background. Murray (1999) looks at how school library programs can foster confidence, self-esteem and independence in students with disabilities who are attending mainstream schools. Drawing on interviews with school library staff, special education teachers and students from fourteen primary and secondary schools in Victoria and New South Wales, Murray found that the school library provided opportunities for students with disabilities to work collaboratively with others, exercise independence, and feel accepted. The study also found that many students had experienced success in learning information skills. Other elements that appeared to contribute positively to the improved confidence and self-esteem of students with disabilities were collections that promoted value and acceptance of disability; accessible technological resources, such as CD-ROM reference tools, which helped students refine a topic and search more efficiently; and engaging students as library monitors. In some case-study schools students were given responsibility for undertaking small jobs in the library, such as shelving or issuing books to other students. In one school the library provided placement for work experience for older students. The study shows a number of ways in which school libraries can contribute to the personal growth of students with disabilities, and thus indirectly enhance their capacities to learn and become more independent.

Dyer (2001) reports similar positive results from a training program for student volunteers in a high school library in Sydney. Through her action research project she has been able to document cases of 'poor achievers and students with low self-esteem who have grown visibly ... We have seen our crew of Vietnamese, Afghanis, Serbians, Arabs and Anglos learn the principles of community service and information management and retrieval while they have picked up computer literacy skills that have enhanced their own cognitive development. But above and beyond all that, we have seen them grow emotionally and mature in the eyes of their peers' (p. 3). Such observations suggest that at the very least this is an area that would benefit from further investigation.

A small-scale project aimed at improving students' sense of responsibility for their own learning in an elementary school class shows the difference that a concerted strategy adopted by a library professional and classroom teacher can make. The aim of the project was to foster a greater sense of responsibility so that students could use resources more effectively and improve their group behaviour skills. Woodle, Hartsoe and Taylor (1995) document some of the changes that occurred in their grade three students after a behavioural modification approach was adopted. Using classroom observation sheets, interviews with students and a strong focus on self-evaluation, the project encouraged

students to become joint participants in their own learning. Student responses showed a more reflective and focused approach in the classroom.

In his review of the research relating to the educational impact of the school library, Yoo (1998) notes that research on library use by immigrant students is limited. He points out that 'although advocates for school libraries believe the school library is an extremely helpful tool in developing literacy among immigrant students, research has found little support for this claim' (p. 16).

The impact of the school library on the development of the so-called 'soft' skills, on the learning potential of students with disabilities, low-achieving or at-risk students, and for students whose background is non-English-speaking, has not attracted the same degree of interest from researchers as the more easily measured correlation between school libraries and reading test scores. Yet the findings so far suggest that this is potentially a rich field for study.

6 Strengths and gaps in the research

As has been suggested already, a substantial body of research, much of it derived from studies in the United States, shows that a strong library program, with a full-time library professional, support staff and a strong computer network that connects the library's resources to the classroom, leads to higher student achievement regardless of the socioeconomic or educational levels of the adults in the community (Rodney 2002; Lance 2002, 2001a, 2001b, 2000a, 2000b, 2000c, 1993; Hamilton-Pennell 2000; Smith 2001; Baughman 2000; Tariff 2002). 'Where library media programs are better staffed, better stocked, and better funded, academic achievement tends to be higher' (Lance 2001a, p. 4). The work of Krashen and others has shown the contribution that school libraries can make to improving the literacy of students: a print-rich environment leads to more reading, and free voluntary reading has in turn been found to be the best predictor of comprehension, vocabulary growth, spelling and grammatical ability and writing style (Krashen 1993, 1995, 1998; Elley 1992; Novljan 1998; Masters and Forster 1997; Froese 1997). There is evidence to show that libraries have an impact not only on student achievement in standardised tests but also on learning more broadly (Kinnell 1994; Williams and Wavell 2001). The work of Todd and others (1993, 1995) shows that integrating information skills into the curriculum can improve students' mastery of both content and information literacy. Studies of the impact of the Library Power initiative have shown that libraries can make a difference, particularly when a collaborative approach between teachers and library professionals is adopted, in the areas of reading scores and students' selection of reading material. (Philadelphia Education Fund 1997a and 1997b; Oberg 1999; Zweizig 1999). There is evidence to show that libraries can make a difference to students' self-esteem, confidence, independence and sense of responsibility in regard to their own learning (Murray 1999, Dyer 2001, Woodle 1995).

Taken together, these studies offer a significant body of evidence to suggest that school libraries have a positive impact on student achievement. They also suggest that this impact is the result of a complex interaction of variables and that there is a need for further investigation into how school libraries help students learning more broadly. The

collection of studies that investigate the relationship between reading scores on state tests and school library variables, while yielding valuable insights, are also limited by their reliance on statistical analysis. Much of the most useful evidence on this topic, such as the Library Power initiative studies or Williams and Wavell's Scottish study (2001a), has been derived using qualitative methodologies. One of the studies referred to by Williams, Wavell and Coles in their literature review is Vallender's (2000) unpublished research dissertation. Vallender concludes that statistical analysis of examination achievement is insufficient to show effectively the contribution that school libraries can make, and that for the library to truly make a difference its contribution needs to be fully integrated into the teaching and learning of the school (Williams, Wavell and Coles 2001, p. 11).

There is also a concern that much of the research undertaken so far has focused more on the primary than the secondary school setting. Some research suggests that the impact of the school library diminishes as students move through high school (Burks 1999; Lance 2001b). If this is true, is this because students have already acquired the information seeking skills they need to pursue a research topic, or because they have less time and/or inclination to read for leisure, or are other factors at work? If, as Smith's 2001 Texas study suggests, the most influential library variables at junior/middle school level are identifying materials for instructional units developed by teachers and providing information skills instruction to individuals or groups, then this has implications for the delivery of information skills instruction at upper primary and lower secondary school levels (Williams, Wavell and Coles 2001, p. 11). If it is true that the potential for school libraries to make an impact on student achievement is more likely to be present at the primary school level and diminishes as students move through high school, then, for example, there is an even greater need to ensure that information-seeking skills are covered early in a student's academic career.

Williams, Wavell and Coles (2001) examine the evidence for two other aspects of school libraries that have been shown to have an impact on student learning: service provision and professional expertise. Their conclusions in relation to the impact of service provision support the findings of Lance et al. In the case of service provision, there is evidence to show that the quality and quantity of the collection is a significant factor in student learning; that collaboration with the classroom teacher increases teacher awareness of resources, which in turn serves to encourage greater student use of resources; that flexible scheduling encourages student use of the library; and that 'the quality and frequency of librarian instructional input' also has an impact on learning (p. 22). One gap in the research related to service provision, however, is the lack of information about how the different models of school library service provision work.

In terms of professional expertise, Williams, Wavell and Coles (2001) conclude that more research is needed to determine the extent to which the success of a program is due to the librarian's personal attributes or training and experience. Also missing from the research is evidence about the relative roles of teachers and school librarians and their effectiveness in providing information literacy. There have been anecdotal reports of principals seeing the Internet as a potential substitute for human assistance in the library. However, further investigation is needed to determine the current views of principals in a cross-section of Australian schools on the role and potential contribution of the teacher

librarian to student learning, particularly in regard to the teaching of information literacy skills.

The literature review has uncovered several other gaps in the research on school libraries and student achievement. Burks (1999) notes that there is a lack of data about actual student use of the school library, but that such information is needed because of budget cutbacks and a focus on accountability. It is possible that this kind of research could also assist school librarians in deciding how they can maximise student use of the library and thus increase the opportunities to make positive interventions designed to enhance student learning. Burks' own study of student use of school libraries in selected high schools in Greater Dallas–Fort Worth looked at why students use the school library and how frequently. Burks found limited use of the library by these high school students mainly because of a lack of time and motivation. The study shows that 'the school with the highest teacher usage had more students who read books for pleasure, who used the library media centre to study or complete assignments, and who had the highest percentage of use during the sample week as well as in general' (p. 14). According to Burks, assignments were the single greatest influence on use and non-use of the school library for these high school students. It would be useful to conduct a similar study of student usage patterns in Australian school libraries. Knowing why students come to the library—for example, to what extent are they motivated by a need to find information for a project, a desire for leisure reading material, a desire to use computer games or gain access to the Internet, a desire to gain work-related skills by assisting staff; a need for a sanctuary from the rigours of the schoolyard—could in turn help school library staff to cater better for student needs and, as existing research suggests, potentially make a difference in terms of information skills acquisition, reading literacy skills, computer literacy or improved self-esteem.

Welch and Braybrook (2002) contend that in Australia, although there is a body of research about measurement of input, there is little material that examines these inputs in terms of student educational outcomes. 'While there are also serious questions about the applicability of these survey techniques for Australian purposes, and the availability of comparable data on scores etc, the ideas behind this research demonstrate a large scale approach to measuring educational outcomes that could ultimately be useful' (p. 7). Although measurement of input (as the survey by Welch and Braybrook shows) allows the use of benchmarks and standards, the inherent problems with this method in an outcomes-based system are also revealed. Global approaches to evaluation and measurement, although useful, might also be only one of a number of approaches used. Welch and Braybrook suggest that 'local level evaluation of outcomes may prove to be one of the most valuable measurements' (p. 7). On the basis of their extensive literature review, Williams, Wavell and Coles (2001) recommend that the large-scale model used by Lance and in the Texas study (Smith 2001) be adapted for use in a pilot study to see whether the methodology is transferable to an English setting. Although this kind of model has yielded important findings in the United States, it is underpinned by a rather narrow conception of student learning, and it is not clear how useful such large-scale studies would be in an Australian context. There is already a substantial body of this kind of quantitative evidence indicating some of the library variables that affect student performance on state reading tests, and it is not clear how much additional insightful information could be obtained from a similar large-scale research undertaking in Australia. This is not to say that such studies

could not be usefully conducted in an Australian context, rather that in terms of evaluating the impact of the school library on broader aspects of learning, it might be that a series of focused, small-scale, qualitative studies are a more useful option.

Like Welch and Braybrook, Todd (2002c) considers that the most useful evidence of the contribution of school libraries to student learning is likely to come from local studies or micro-research rather than from macro-research reports. Macro-research consists of large-scale studies, such as those by Lance and colleagues, which are generally statewide studies that draw on quantitative data and are aimed at identifying those aspects of school library services that are important predictors of student achievement. Micro-research studies, on the other hand, 'tend to be small scale, local, and employ a range of methodologies such as case studies, action research, survey questionnaires, interviews, quasi experiments, observational approaches, process tracking, document analysis, and group comparisons' (Todd, p. 3).[2] Such methods would be ideally suited to studies that attempt to measure the difference that school libraries and librarians can make in an Australian setting, particularly on more intangible outcomes such as autonomy, confidence and self-esteem, or on particular subgroups, such as non-English-speaking students, indigenous students, low-achieving students or those at risk. Williams and Wavell (2001a) offer a useful starting point for measuring the impact on learning in general, with sets of indicators to show evidence of motivation, progression, independence and interaction. Williams, Wavell and Coles (2002) suggest that a longitudinal approach might also be useful so that students' skills development could be tracked over time.

One gap in the research that needs to be addressed is the lack of specific evidence linking the role of school librarians to student acquisition of information literacy skills. There is a substantial body of literature that urges the importance of the librarian's role in this regard, provides information skills models and instructional strategies for the development of information literacy skills, and provides information literacy standards, but the literature search yielded few studies that explicitly look at students' skills before undertaking and on completion of some form of information skills education as part of an integrated curriculum. Todd (2002c) and Garland (1995), among others, refer to Kuhlthau's body of work in which the information search process (ISP) is conceptualised as a seven-stage process of Initiation, Selection, Exploration, Formulation, Collection, Presentation and Assessment. These stages could form a useful starting point for further research. For example, Garland's (1995) study of six research tasks undertaken by students at Holt High School in 1992–93 uses Kuhlthau's model as the basis for constructing questions for the interviews and written surveys. Thus in the Process stage students were asked whether their feelings about the task had changed, and in the Planning stage teachers were asked how they thought the student research project would contribute to student outcomes. The emphasis is on encouraging reflection about the process of teaching and learning in an information literacy context and not simply on mastery of content. Todd (2002c) calls for practitioners to ensure that both 'the articulation of the information literacy framework, and the pedagogy of its integration

[2] Some examples of micro-research in a school library context can be found in *Scan*'s research columns.

into the curriculum actually reflect the current research-based understanding of information searching and use' (p. 6). It could also be said that rather than simply describing the crucial role of school librarians in the acquisition of information literacy skills today, there is a need for a strong base of evidence that shows clearly and unequivocally the nature of this powerful contribution. In his 1995 report on the impact of integrated information skills instruction on a group of secondary science students, Todd points out that there is 'an urgent need' to test the conclusions of his study in different school settings and 'to develop additional measures of students' ability to master and use a range of information skills to meet their needs' (p. 12).

The Big6 approach to teaching information literacy skills is based on the six steps of task definition, information-seeking strategies, location and access, use of information, synthesis and evaluation. Eisenberg and Berkowitz (2002) have published online twenty-two exemplary implementations of the Big6 program, several of which provide 'evidence', ranging from anecdotal or observational to pre and post surveys, of the impact of this approach to student learning. Although some examples are given of collaborative teaching between school librarians and classroom teachers, the focus of the case studies is more on the impact of this particular information literacy approach than on the specific role of the school librarian in enhancing students' skills. More evidence is needed in order to determine precisely how the school librarian contributes to the information skills acquisition of students and the relationship between information literacy and learning. For example, what does it mean to be information literate today? Which information skills is it important for students to have? How do we know that students have acquired these skills? What indicators will tell us this? How can we measure the contribution that school librarians have made to the information skills acquisition of students and teachers? Research could perhaps be undertaken using Kuhlthau's process model as adapted by Garland (1995), or using the information and ICT literacy matrix of student learning developed by the Australian School Library Association (ASLA 2001, pp. 14–19) as a starting point for measuring student learning outcomes after an instructional unit. The Council of Australian University Librarians (2001) provides a set of information literacy standards that could also be used as the basis for evaluating what is being done in the school library.

Todd (2001b) argues that there is a need for local evidence-based practice: 'Sustaining the future is about action, not position; it is about evidence, not advocacy, and at the heart of this is inquiry-based learning for knowledge construction' (p. 15). Other research, he points out, has shown that students experience a range of learning difficulties in using the Internet, which provides an opportunity for teacher librarians to intervene and 'through collaborative, inquiry-centred approaches, to demonstrate that their practice makes a real difference to student learning' (p. 17). Such evidence could be in the form of statistics, stories or documented case studies, for example.

Todd (2002a, 2002b, 2002c) makes a strong case for librarians to undertake action research of their own, focusing on the key question of how the quality of student learning in their particular schools could be improved. There is a wide range of data available, ranging from library data relating to Internet usage, class bookings, and circulation of resources to looking at the results of tests and exams for classes engaged in collaborative

projects. Todd (2001) suggests that school librarians still think mainly in terms of 'collections, position and advocacy' and that 'our mindset needs to shift to evidence-based learning practice that has as its heart the central concepts of knowledge construction and human understanding' (Todd p. 4).

There is no shortage of documents urging school librarians to become more proactive or offering advice regarding action research. Oberg (2001B), for example, suggests five possible approaches to showing that school libraries can make a difference: using research findings from the school library field; analysing the results of national, state or regional testing programs; using locally available library and test data; carrying out action research or teacher-researcher project; and using easily available statistical data, such as census or systems data. She also makes the point that it is important to use stories, case studies and brief scenarios, not simply statistical data. Sykes (2001) provides some guidelines for demonstrating that the school library is making a significant contribution to the aims of the school.

Perhaps a useful starting point for Australian library professionals would be to gain a more accurate picture nationally of the current state of school librarianship, particularly in relation to numbers of teacher librarians and how they are being used in schools. Before embarking on a sustained and systematic program of research, or even a promotional campaign to highlight the positive contribution that school librarians can make to student learning, it would be useful to have an accurate snapshot of what is currently happening around the country in regard to school library staffing. It makes sense to know how grim the reality is before setting out to confront and transform this reality.

7 Conclusion

Existing research shows that school libraries can have a positive impact, whether measured in terms of reading scores, literacy or learning more generally, on student achievement. There is evidence to show that:

- a strong library program that is adequately staffed, resourced and funded can lead to higher student achievement regardless of the socioeconomic or educational levels of the adults in the community;
- a strong computer network connecting the library's resources to the classroom and laboratories has an impact on student achievement;
- the quality of the collection has an impact on student learning;
- test scores are higher when there is higher usage of the school library;
- collaborative relationships between classroom teachers and school librarians have a significant impact on learning, particularly in relation to the planning of instructional units, resource collection development, and the provision of professional development for teachers;
- a print-rich environment leads to more reading, and free voluntary reading is the best predictor of comprehension, vocabulary growth, spelling and grammatical ability and writing style;

- the extent to which books are borrowed from school libraries shows a strong relationship with reading achievement whereas borrowing from classroom libraries does not;
- integrating information literacy into the curriculum can improve students' mastery of both content and information-seeking skills;
- a positive difference can be made to student achievement when school libraries cooperate with public libraries;
- libraries can make a positive difference to students' self-esteem, confidence, independence and sense of responsibility in regard to their own learning;
- the impact of school libraries appears strongest at primary and junior high school and weakest at the upper levels of secondary school, although more research is needed to show why this is the case at the senior level; and that
- there is insufficient research on subgroups of school library users (particularly students at risk), the nature of the contribution that school librarians make to student acquisition of information literacy skills, and the extent to which a school librarian's personal attributes and qualities contribute to student achievement.

Todd (2001b) outlines some of the key findings that establish a positive relationship between school libraries and student achievement. These include a shared educational philosophy centring on inquiry learning; the systematic development of students' information and critical literacy skills; the development of students' information competence via flexibly delivered classroom instruction; active reading programs that foster higher levels of reading comprehension, vocabulary development, and language skills; and successful school library programs that set clear expectations and gather systematic feedback from students and teachers.

Further research would be useful in relation to the impact of school library programs on information literacy skills acquisition; the impact of personal attributes, qualifications and roles of school librarians on student learning (Williams, Wavell and Coles 2001); the impact of school library interventions on particular groups of disadvantaged and at risk students, including NESB students and indigenous students; and the impact of school library interventions on students' confidence, motivation and self-esteem. It is important to know why the influence of school libraries on the learning of students in upper secondary school is apparently less than at the junior levels so that appropriate strategies could be adopted to maximise the school library contribution to the learning of these senior students. There is a need to investigate the kinds of qualitative methods that will enable the more intangible effects of school library programs on student learning to be measured, such as the kinds of indicators developed by Williams and Wavell (2001a) to measure student motivation. Given that the summary of evidence contained in reviews such as this is intended to foster greater recognition of the important role that school librarians can play in student learning, it would also be useful to have a better sense of national trends in school library staffing in Australia as well as any significant differences in roles, responsibilities, training, and working conditions among systems.

Throughout this literature review the underlying question has been: if research over the past five or six decades has consistently shown a positive relationship between student

achievement and school libraries, then why does the 'case' for libraries still need to be put? Why do practitioners still need to convince decision-makers and administrators of the positive correlation between library services and student achievement?

Hartzell (1993) offers several reasons why the contribution of the school librarian to student achievement might not be widely recognised in schools. First, parents usually have minimal contact with teacher librarians on a day-to-day basis and so will most likely have little idea of what impact the school library has had on their child's learning; second, teachers tend to view librarians as support resources rather than as fellow teachers; third, it is difficult to assess the extent to which a school librarian has contributed ideas, resources and services to a successful project; and fourth, librarians tend to be rather isolated, finding it difficult to build relationships with other staff in the school. For these reasons a teacher or administrator is more likely to be given recognition for student achievement than a teacher librarian.

Action research in school libraries, then, is a crucial tool for raising the profile and prestige of library professionals. Todd (2001) is emphatic that school librarians will not be able to enhance their status until they recognise the need for evidence-based practice 'that is directed towards demonstrating the real tangible power of your contribution to the school's learning goals' (p. 11). It is not enough to be doing good things, he suggests; the question 'what difference did this make to student learning?' needs constantly to be asked. Evidence-based practice, Todd warns, 'is fundamental to future survival'.

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